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Instruction manual

Double Insulated **Quicksand™** Random Orbit Sanders



MODELS 333
and 334



MODEL
332



MODEL
333VS

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<http://www.porter-cable.com>

PORTER-CABLE
PROFESSIONAL POWER TOOLS

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IMPORTANT

Please make certain that the person who is to use this equipment carefully reads and understands these instructions before starting operations.

The Model and Serial No. plate is located on the main housing of the tool. Record these numbers in the spaces below and retain for future reference.

Model No. _____

Type _____

Serial No. _____

Part No. 900006 (02-07-02)

⚠ WARNING: SOME DUST CREATED BY POWER SANDING, SAWING, GRINDING, DRILLING, AND OTHER CONSTRUCTION ACTIVITIES contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

GENERAL SAFETY RULES

⚠ WARNING: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following:

SAVE THESE INSTRUCTIONS

WORK AREA

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

ELECTRICAL SAFETY

1. **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double Insulation ☐ eliminates the need for the three wire grounded power cord and grounded power supply system.
2. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
3. **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
4. **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.
5. **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.

PERSONAL SAFETY

1. **Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.

2. Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.

3. Avoid accidental starting. Be sure switch is OFF before plugging in. Carrying tools with your finger on the switch or plugging in tools that have the switch ON invites accidents.

4. Remove adjusting keys or wrenches before turning the tool ON. A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.

5. Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enable better control of the tool in unexpected situations.

6. Use safety equipment. Always wear eye protection. Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

TOOLS USE AND CARE

1. Use clamps or other practical way to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.

2. Do not force tool. Use the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.

3. Do not use tool if switch does not turn it ON or OFF. A tool that cannot be controlled with the switch is dangerous and must be repaired.

4. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.

5. Store idle tools out of reach of children and other untrained persons. Tools are dangerous in the hands of untrained users.

6. Maintain tools with care. Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.

7. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.

8. Use only accessories that are recommended by the manufacturer for your model. Accessories that may be suitable for one tool may become hazardous when used on another tool.

SERVICE

1. Tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel may result in a risk of injury.









2. When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance Section of this manual. Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury.

SPECIFIC SAFETY RULES AND SYMBOLS FOR RANDOM ORBIT SANDERS

1. **ALWAYS DISCONNECT** the sander cord plug from the power circuit before changing abrasive sheets.
2. **USE DUST MASK.** Wear a protective mask to minimize breathing in the fine dust created while sanding.
3. **DO NOT RUN TOOL WITH BACK-UP PAD REMOVED.** Resulting vibration could cause loss of control.
4. **DO NOT OPERATE TOOL WITH DUST SHROUD REMOVED.** The dust shroud covers high-speed rotating parts.
5. **KEEP HANDS AND BODY PARTS AWAY** from rotating disc. Contact with rotating disc may cause severe cuts and abrasions.
6. **NEVER RUN SANDER** with dust container or dust collector assembly removed. Dust could be blown into eyes.
7. **WEAR EYE AND FACE PROTECTION.** Injury to face and eyes can result if disc flies off or pad ruptures. Wear impact resistant glasses and full face shield.
8. **USE PROPER SAFETY EQUIPMENT.** Wear safety goggles to protect your eyes and wear a protective mask to minimize breathing in the fine dust created while sanding. **NOTE:** Some wood contains preservatives which can be toxic. Take extra care to prevent inhalation and skin contact when working with these materials.
9. **SANDING OF LEAD-BASED PAINT IS NOT RECOMMENDED.** Lead-based paint should only be removed by a professional.
10. **SOME WOOD CONTAINS PRESERVATIVES WHICH CAN BE TOXIC.** Take extra care to prevent inhalation and skin contact when working with these materials. Request, and follow, any safety information available from your material supplier.
11. **⚠ WARNING:** There are certain applications for which this tool was designed. Porter-Cable strongly recommends that this tool NOT be modified and/or used for any application other than for which it was designed. If you have any questions relative to its application DO NOT use the tool until you have written Porter-Cable and we have advised you.


Technical Service Manager
Porter-Cable Corporation
4825 Highway 45 North
Jackson, TN 38305

SYMBOL	DEFINITION
V	volts
A	amperes
Hz	hertz
W	watts
kW	kilowatts
μF	microfarads
l	liters
kg	kilograms
N/cm ²	newtons per square centimeter
Pa	pascals
h	hours
min	minutes
s	seconds

	.....	alternating current
3	.....	three-phase alternating current
3N	.....	three-phase alternating current with neutral
	.....	direct current
n_0	.....	no load
	.....	alternating or direct current
	.....	Class II Construction
	.....	splash-proof construction
	.....	watertight construction
.../min	.....	revolutions or reciprocation per minute

SAVE THESE INSTRUCTIONS

ADDITIONAL SAFETY RULES FOR PAINT REMOVAL

 **WARNING:** Extreme care should be taken when removing paint. The peelings, residue, and vapors of paint may contain lead, which is poisonous. Exposure to even low levels of lead can cause irreversible brain and nervous system damage; young and unborn children are particularly vulnerable.

Before beginning any paint removal process you should determine whether the paint you are removing contains lead. This can be done by your local health department or by a professional who uses a paint analyzer to check for lead.

LEAD-BASED PAINT SHOULD ONLY BE REMOVED BY A PROFESSIONAL.

Persons removing paint should follow these guidelines:

- 1. KEEP THE WORK AREA WELL VENTILATED.** Open the windows and put an exhaust fan in one of them. Be sure the fan is moving air from inside to outside.
- 2. REMOVE OR COVER** any carpets, rugs, furniture, clothing, cooking utensils and air ducts.
- 3. PLACE DROP CLOTHS** in the work area to catch any paint chips or peelings. Wear protective clothing such as extra work shirts, overalls and hats.
- 4. WORK IN ONE ROOM AT A TIME.** Furnishings should be removed or placed in the center of the room and covered. Work areas should be sealed off from the rest of the dwelling by sealing doorways with drop cloths.
- 5. CHILDREN, PREGNANT OR POTENTIALLY PREGNANT** women and nursing mothers should not be present in the work area until the work is done and all cleanup is complete.
- 6. WEAR A DUST RESPIRATOR** or a dual filter (dust and fume) respirator mask which has been approved by the Occupational Safety and Health Administration (OSHA), the National Institute of Safety and Health (NIOSH), or the United States Bureau of Mines. These masks and replaceable filters are readily available at major hardware stores. Be sure the mask fits. Beards and facial hair may keep the masks from sealing properly. Change filters often. DISPOSABLE PAPER MASKS ARE NOT ADEQUATE.

7. KEEP FOOD AND DRINK out of the work area. Wash hands, arms, and face and rinse mouth before eating or drinking. Do not smoke or chew gum or tobacco in the work area.

8. CLEAN UP ALL REMOVED PAINT and dust by wet mopping the floors. Use a wet cloth to clean all walls, sills and any other surfaces where paint or dust is clinging. **DO NOT SWEEP, DRY DUST OR VACUUM.** Use a high phosphate detergent or trisodium (TSP) to wash and mop areas.

9. AT THE END OF EACH WORK SESSION put the paint chips and debris in a double plastic bag, close it with tape or twist ties and dispose of properly.

10. REMOVE PROTECTIVE CLOTHING and work shoes in the work area to avoid carrying dust into the rest of the dwelling. Wash work clothes separately. Wipe shoes off with a wet rag that is then washed with the work clothes. Wash hair and body thoroughly with soap and water.

REPLACEMENT PARTS

When servicing use only identical replacement parts.

MOTOR

Many Porter-Cable tools will operate on either D.C., or single phase 25 to 60 cycle A.C. current and voltage within plus or minus 5 percent of that shown on the specification plate on the tool. Several models, however, are designed for A.C. current only. Refer to the specification plate on your tool for proper voltage and current rating.

CAUTION: Do not operate your tool on a current on which the voltage is not within correct limits. Do not operate tools rated A.C. only on D.C. current. To do so may seriously damage the tool.

EXTENSION CORD SELECTION

If an extension cord is used, make sure the conductor size is large enough to prevent excessive voltage drop which will cause loss of power and possible motor damage. A table of recommended extension cord sizes will be found in this section. This table is based on limiting line voltage drop to 5 volts (10 volts for 230 volts) at 150% of rated amperes.

If an extension cord is to be used outdoors it must be marked with the suffix W-A or W following the cord type designation. For example – SJTW-A to indicate it is acceptable for outdoor use.

RECOMMENDED EXTENSION CORD SIZES FOR USE WITH PORTABLE ELECTRIC TOOLS

		Length of Cord in Feet									
		115V	25 Ft.	50 Ft.	100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	400 Ft.	500 Ft.
		230V	50 Ft.	100 Ft.	200 Ft.	300 Ft.	400 Ft.	500 Ft.	600 Ft.	800 Ft.	1000 Ft.
Nameplate Ampere Rating	0-2	18	18	18	16	16	16	14	14	12	12
	2-3	18	18	16	14	14	14	12	12	10	10
	3-4	18	18	16	14	12	12	10	10	8	8
	4-5	18	18	14	12	12	10	10	8	8	8
	5-6	18	16	14	12	10	10	8	8	6	6
	6-8	18	16	12	10	10	8	6	6	6	6
	8-10	18	14	12	10	8	8	6	6	4	4
	10-12	16	14	10	8	8	6	6	4	4	4
	12-14	16	12	10	8	6	6	6	4	2	2
	14-16	16	12	10	8	6	6	4	4	2	2
	16-18	14	12	8	8	6	4	4	2	2	2
	18-20	14	12	8	6	6	4	4	2	2	2

FUNCTIONAL DESCRIPTION

FOREWORD

The Porter-Cable Random Orbit Sanders provide rapid stock removal with 80 to 100 grit paper and swirl-free finishing with 120-150 grit paper. Model 332 is equipped to accept 5" diameter STIKIT™ adhesive paper backed abrasives. Model 333 is equipped to accept 5" hook & loop backed abrasives with five dust extraction holes. Model 333VS is equipped to accept 5" hook & loop backed abrasives with five or eight dust extraction holes. Model 334 is equipped to accept 5" diameter STIKIT™ adhesive backed abrasives with five dust extraction holes.

TO START AND STOP SANDER

1. **CAUTION:** Make certain the switch is in the "OFF" position, and the power source is the same as that specified on the tool's nameplate.
2. Connect the tool to the power source.

CAUTION: Keep hands and body parts away from rotating disc. Contact with rotating disc can cause severe cuts and abrasions.

3. The switch button, (A) Fig. 1, is labeled "ON" and "OFF". Depress the "ON" end of the switch button to start motor. Depress the "OFF" end of the switch button to stop motor.

SPEED CONTROL (333VS)

Model 333VS is equipped with a variable speed control. Operating speed is adjustable between 5000 OPM (Orbits Per Minute) and 12000 OPM.

Adjust speed by turning thumbwheel (B) Fig. 1A. Thumbwheel position #1 provides the slowest operating speed (5000 OPM) and position #6 the fastest (12000 OPM). Speed may be changed while motor is running or while it is stopped.

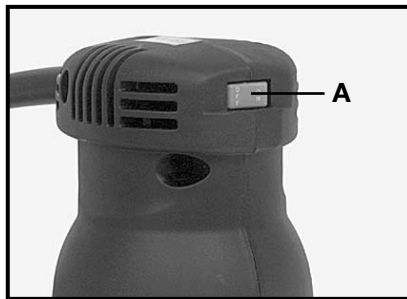


Fig. 1

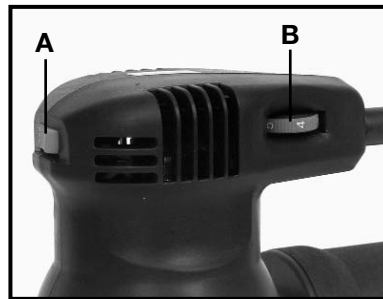


Fig. 1A

ASSEMBLY

INSTALLING/REMOVING ABRASIVE DISC

Models 332 and 334:

1. **CAUTION:** DISCONNECT TOOL FROM POWER SOURCE.
2. Place machine on workbench with pad up (see Fig. 2).
3. Clean dust from pad face.



Fig. 2



Fig. 3

4. Tear a new abrasive disc from roll and position disc to the sander pad. Align the dust extraction holes in paper with holes in pad (334 ONLY).
5. Press disc firmly onto pad.
6. Position machine with abrasive contacting scrap material. Start machine and operate momentarily while exerting firm pressure to seat disc to pad.

CAUTION: Failure to properly seat disc to pad may result in disc being thrown from pad causing personal injury.

7. To remove disc, peel disc away from pad.

NOTE: Do not store machine with an abrasive disc installed. Heat generated by the sanding operation increases the adhesive bond between the disc and pad. If disc is left on pad for an extended time after use, it can become difficult to remove.

Models 333 and 333VS:

1. **CAUTION:** DISCONNECT TOOL FROM POWER SOURCE.
2. Place machine on workbench with pad up (see Fig. 3).
3. Clean dust from pad face.
4. Position Hook & Loop Abrasive Disc onto sander pad, aligning the dust extraction holes in paper with holes in pad. **NOTE:** When using 8-hole abrasive on model 333VS, align the hole pattern in the abrasive with the groove in the sander pad.

CAUTION: Do not use PSA (Pressure Sensitive Adhesive) disc with Hook & Loop pad as the disc may be thrown from the pad causing personal injury.

5. Press disc firmly onto pad.

CAUTION: Failure to properly seat disc to pad may result in disc being thrown from pad causing personal injury.

6. To remove disc, peel disc away from pad.

DUST COLLECTOR (Models 333, 333VS and 334)

1. **CAUTION:** DISCONNECT TOOL FROM POWER SOURCE.
2. Position dust collector to sander nozzle as shown in Fig. 4. Seat collector onto nozzle.



Fig. 4

3. Periodically remove dust container from flange and empty collected dust, Fig. 5.

NOTE: A slight twisting action will ease removal and reassembly.

Tap container lightly to remove compacted dust. **DO NOT WASH CONTAINER.** Dry compressed air may be used to blow out container.



Fig. 5

CAUTION: Wear safety glasses while using compressed air.

CAUTION: Never run sander with dust container or dust collector assembly removed. Dust could be blown into eyes.

The dust collector can be rotated around the body of the sander. It may be used in any convenient position, Fig. 6.

The dust collector may be replaced with Accessory Hose so that tool can be used with a remote vacuum system.



Fig. 6

OPERATION

HOW TO HOLD SANDER

These sanders are designed to be held either around the main housings, Fig. 7, or by the top of the main housings, Fig. 8. When sanding for long periods, it is recommended you periodically alternate between the two holding positions.



Fig. 7



Fig. 8

PAD BRAKE

These sanders are equipped with a pad brake that prevents over-speeding of the pad. If the tool is lifted off the work surface while the motor is running, the brake will limit pad rotation to no more than 400 RPM.

The pad brake uses a belt to provide the braking action. Eventually, this belt may require replacement. If the brake fails to limit pad rotation, send the sander to a Porter-Cable service facility or replace the belt yourself as explained under BELT REPLACEMENT in the MAINTENANCE SECTION of this manual.

USING THE SANDER

1. **CAUTION:** Secure work to prevent it from moving during the sanding operation. Friction between the sanding disc and work will try to spin work away from sander and may cause bodily injury.
2. **CAUTION:** WEAR SAFETY GLASSES AND DUST MASK.
3. Place sander pad in light contact with the work before switching the motor "ON".
4. Grasp sander firmly and move switch to "ON" position.
5. Move sander in long overlapping strokes. Tipping sander or stopping in one spot can produce an uneven finish.
6. When finished, keep pad in contact with work, move switch to "OFF" position and lift sander from the work. Allow pad rotation to stop completely before setting sander down.

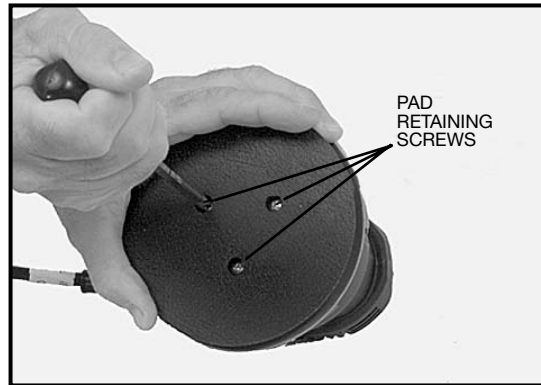


Fig. 9

CHANGING BACK-UP PAD

1. **CAUTION:** DISCONNECT TOOL FROM POWER SOURCE.
2. Grasp pad with hand and use phillips screwdriver to remove three pad retaining screws, Fig. 9 (turn screws counterclockwise to remove).
3. Lift pad from sander.
4. Reverse procedure to install new pad. Tighten pad retaining screws 25 to 30 in-lbs.

MAINTENANCE

KEEP TOOL CLEAN

Periodically blow out all air passages with dry, compressed air. Remove buildup of grime resulting from working with green or sappy wood. All plastic parts should be cleaned with a soft damp cloth. NEVER use solvents to clean plastic parts.

CAUTION: Wear safety glasses while using compressed air.

FAILURE TO START

Should your tool fail to start, check to make sure the prongs on the cord plug are making good contact in the outlet. Also, check for blown fuses or open circuit breakers in the line.

BRUSH INSPECTION AND LUBRICATION

For your continued safety and electrical protection, brush inspection and replacement on this tool should ONLY be performed by an AUTHORIZED PORTER-CABLE SERVICE STATION or a PORTER-CABLE/DELTA FACTORY SERVICE CENTER.

At approximately 100 hours of use, take or send your tool to your nearest authorized Porter-Cable Service Station to be thoroughly cleaned and inspected. Have worn parts replaced and lubricate with fresh lubricant. Have new brushes installed, and test the tool for performance.

Any loss of power before the above maintenance check may indicate the need for immediate servicing of your tool. DO NOT CONTINUE TO OPERATE TOOL UNDER THIS CONDITION. If proper operating voltage is present, return your tool to the service station for immediate service.

BELT REPLACEMENT

1. **CAUTION:** DISCONNECT TOOL FROM POWER SOURCE.
2. Remove back-up pad (see CHANGING BACK-UP PAD).
3. Remove the old belt and clean the belt mounting area.
4. Position the new belt around pulley (A) Fig. 10, and start it onto the shoulder of the pad support (B).
5. Rotate the pad support as you “walk” the belt onto it (see Fig. 11).
6. Reassemble back-up pad (see CHANGING BACK-UP PAD).

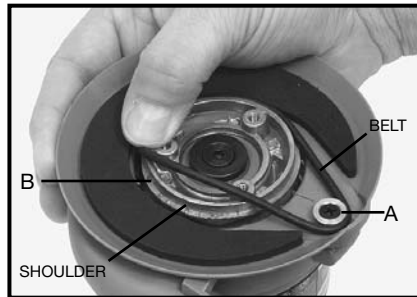


Fig. 10



Fig. 11

SERVICE AND REPAIRS

All quality tools will eventually require servicing or replacement of parts due to wear from normal use. These operations, including brush inspection and replacement, should **ONLY** be performed by either an **AUTHORIZED PORTER-CABLE SERVICE STATION** or a **PORTER-CABLE/DELTA FACTORY SERVICE CENTER**. All repairs made by these agencies are fully guaranteed against defective material and workmanship. We cannot guarantee repairs made or attempted by anyone other than these agencies.

Should you have any questions about your tool, feel free to write us at any time. In any communications, please give all information shown on the nameplate of your tool (model number, type, serial number, etc.).

ACCESSORIES

A complete line of accessories is available from your Porter-Cable • Delta Supplier, Porter-Cable • Delta Factory Service Centers, and Porter-Cable Authorized Service Stations. Please visit our Web Site www.porter-cable.com for a catalog or for the name of your nearest supplier.

⚠ WARNING: Since accessories other than those offered by Porter-Cable • Delta have not been tested with this product, use of such accessories could be hazardous. For safest operation, only Porter-Cable • Delta recommended accessories should be used with this product.

PORTER-CABLE LIMITED ONE YEAR WARRANTY

Porter-Cable warrants its Professional Power Tools for a period of one year from the date of original purchase. We will repair or replace at our option, any part or parts of the product and accessories covered under this warranty which, after examination, proves to be defective in workmanship or material during the warranty period. For repair or replacement return the complete tool or accessory, transportation prepaid, to your nearest Porter-Cable Service Center or Authorized Service Station. Proof of purchase may be required. This warranty does not apply to repair or replacement required due to misuse, abuse, normal wear and tear or repairs attempted or made by other than our Service Centers or Authorized Service Stations. **NOTE: THIS WARRANTY WILL BE VOID IF THE TOOL IS USED ON DRYWALL.**

ANY IMPLIED WARRANTY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WILL LAST ONLY FOR ONE (1) YEAR FROM THE DATE OF PURCHASE.

To obtain information on warranty performance please write to: PORTER-CABLE CORPORATION, 4825 Highway 45 North, Jackson, Tennessee 38305; Attention: Product Service. THE FOREGOING OBLIGATION IS PORTER-CABLE'S SOLE LIABILITY UNDER THIS OR ANY IMPLIED WARRANTY AND UNDER NO CIRCUMSTANCES SHALL PORTER-CABLE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

NOTES